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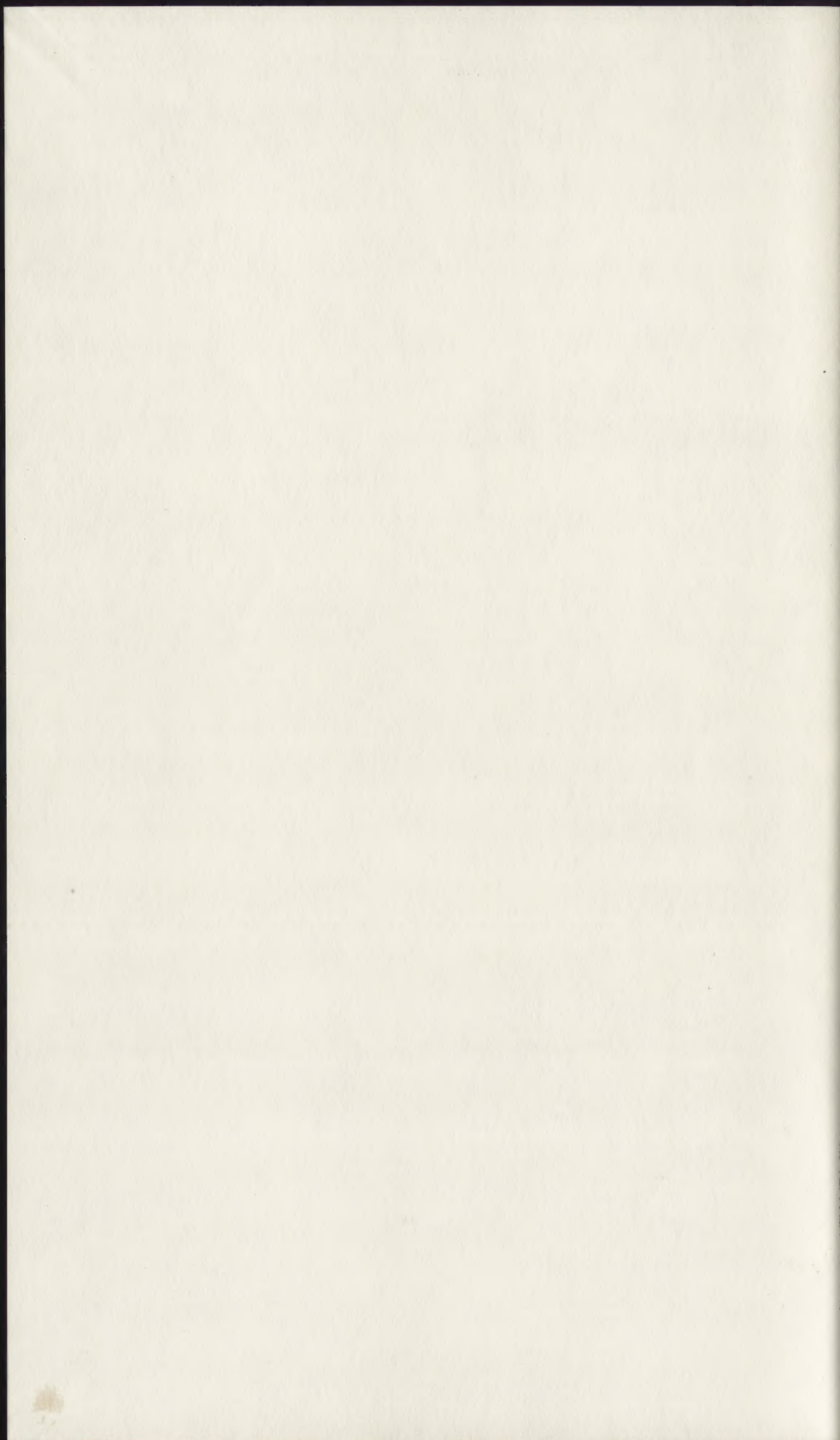
THE LINOTYPE

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EVERY PRINTER SHOULD FAMILIARIZE  
HIMSELF WITH THE WORKINGS

OF

# THE LINOTYPE

ITS CONSTRUCTION AND OPERATION  
MINUTELY EXPLAINED

MERGENTHALER LINOTYPE CO.  
TRIBUNE BUILDING  
NEW YORK

FACTORIES—BROOKLYN AND BALTIMORE



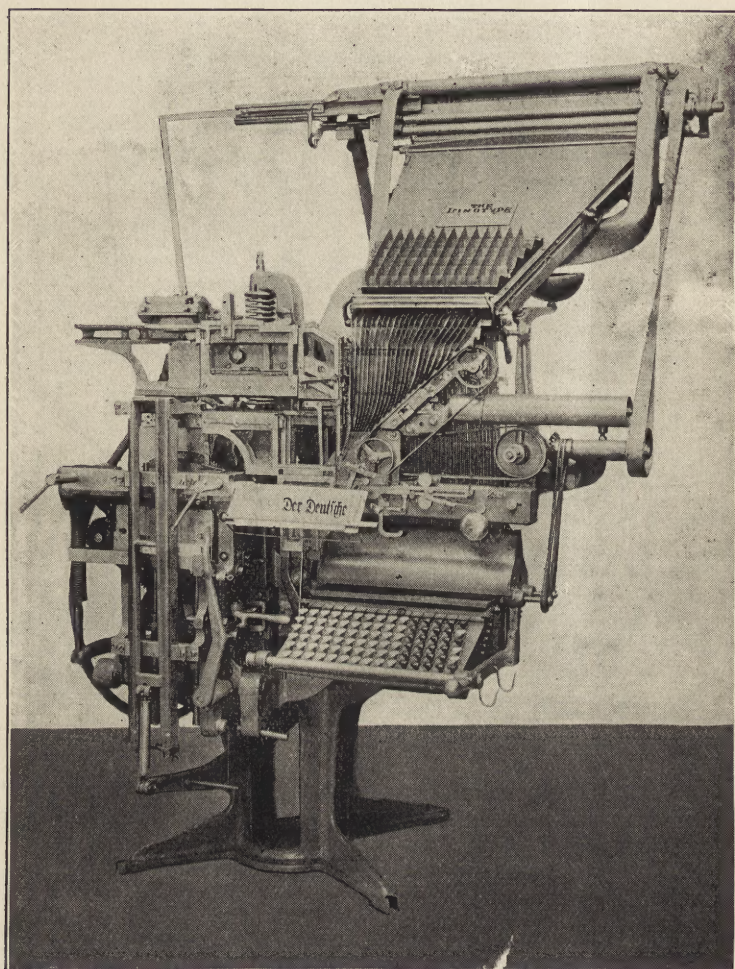


FIG. 1.



# THE MERGENTHALER LINOTYPE

## ITS CONSTRUCTION AND OPERATION

The Linotype Machine is not a type-setting machine in the ordinary sense of the word. On the contrary, it is a machine which, being operated by finger-keys like a type-writer, creates, or produces, type matter ready for use on the press or stereotyping table.

The machine shown in Fig. 1 marks a wide departure from the ordinary method of using single letter type. It produces and assembles side by side, metal bars or slugs such as shown in Fig. 2, each of the length



FIG. 2.

and width of a line of type, and having on the upper edge the type characters to print an entire line. These bars, having the appearance of solid lines of type, and answering the same purpose, are called "linotypes." When assembled side by side, as shown in Fig. 3, they constitute jointly a "form" presenting on its surface the same appearance as a "form" composed of ordinary

type, and adapted to be used in the same manner. After being used, the linotypes are returned to the melting pot to be recast into other lines, thus doing away entirely with distribution.

The production of the linotypes is effected as follows :

The machine contains, as its leading members, a large number of small brass matrices, such as shown in Fig. 4, consisting each of a flat plate, having in its vertical edge a female letter or matrix proper *a*, and in the upper end a series of teeth *b*. There are a number of matrices for each letter, or character, represented in the keyboard.

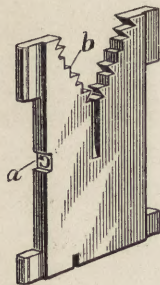


FIG. 4.

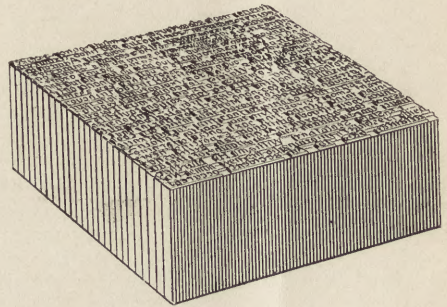


FIG. 3.

The machine is organized to select matrices bearing the required characters, and set them up in line side by side, with intervening spaces, in the order in which they are to appear in print, as shown in Fig. 6, and thereafter to present the line to a mold so that the linotypes or slugs may be cast against and into the entire line of matrices at one operation.

These operations are effected by a mechanism such as shown in Fig. 6, which represents in outline the principal parts of the machine. *A* is an inclined sta-



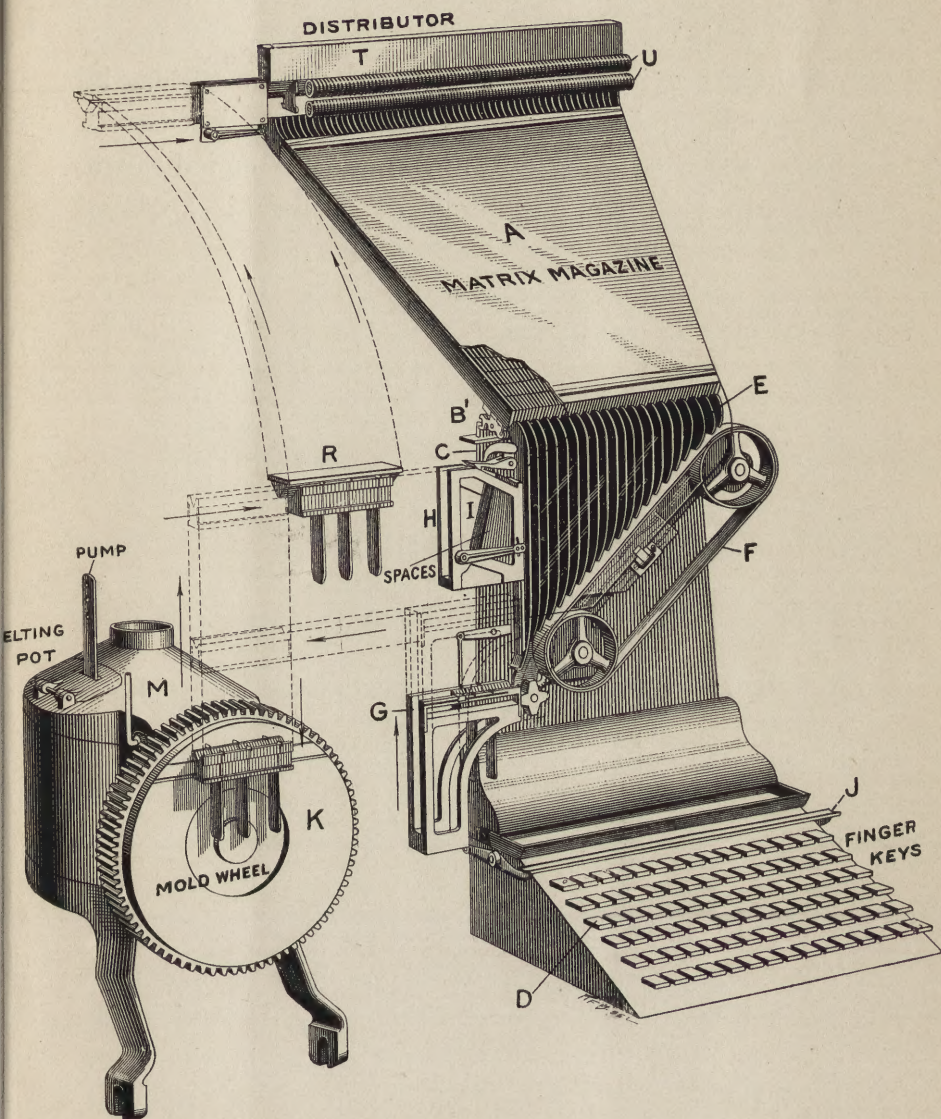


FIG. 6.

tionary magazine or holder, containing channels in which the assorted matrices are stored. The matrices tend to slide downward out of the magazine by reason of their gravity, but they are held in check by escapements *B*, one at the mouth of each channel. From these escapements, rods *C* are extended downwards to a series of finger-keys *D*. There is a special

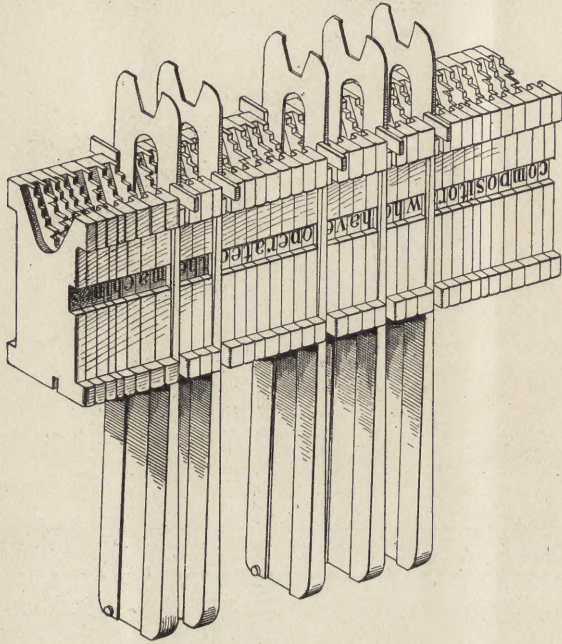


FIG. 5.

key for each character or letter. The keys are depressed by the operator in the order in which the corresponding characters are to appear in the print. Each time a key is actuated it permits a single matrix, bearing the corresponding character, to fall out of the mouth of the magazine and downward through the channels *E*, to an inclined travelling belt *F*, by which



the matrices are carried downward one after another, and delivered into the slotted assembling block *G*, in which they are set up or composed side by side in a line or row as represented in Figs. 5 and 6. A stationary box *H* contains a series of spaces *I*, and a delivery device connected with finger bar *J*, by which the spaces are discharged and permitted to fall into the line at their

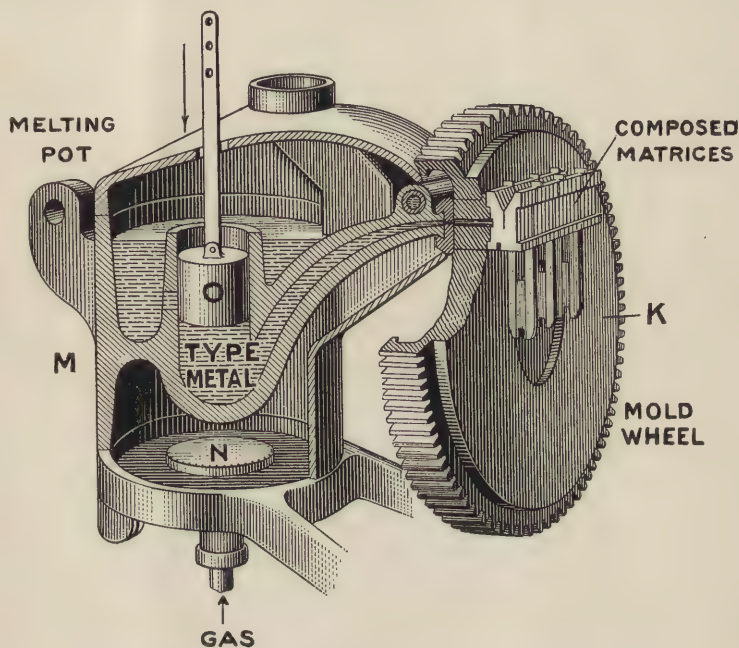


FIG. 7.

proper places. Thus it is that, by operating the keys, the required matrices and spaces are delivered one after another and assembled in line in the block *G*, until it contains all the characters necessary to complete one line of print. After the line of matrices is thus composed it is transferred, as shown by the arrows in Fig. 6 and in Fig. 7, to the face of a vertical mold wheel *K*,

through which a slot or mold proper extends from the front to the rear-face, as shown in Figs. 7 and 8. The entire row of characters in the matrix line is presented directly opposite the face of the mold or slot, as shown in Fig. 7, so that when the mold is filled with metal to produce a slug or linotype, the metal will flow into the matrices, which produce their respective type characters in relief on the edge of the casting.

Behind the mold wheel there is arranged a pot *M*, in which type-metal is maintained in a molten condition

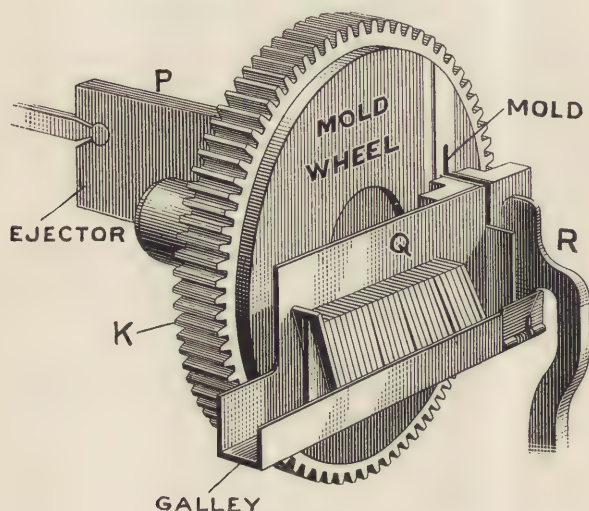


FIG. 8.

by a flame from the gas burner *N* thereunder. The pot has a delivery mouth or channel adapted to fit against and close the rear face of the mold. Within the pot there is mounted a mechanically operated pump plunger *O*. After the line of matrices is presented and locked against and across the face of the mold, the



mouth of the pot is closed against the rear side of the mold, and the plunger then operated to force the molten metal from the mouth of the pot into the mold, in which it solidifies, completing the slug or linotype. After the linotype is thus produced, the mold wheel makes a partial revolution, turning the mold slot from the horizontal position in which it stood during the casting operation, to the vertical position shown in Fig. 8. While the mold stands in this position, a horizontal blade *P* advances from the rear and pushes the linotype forward out of the mold and between trimming knives into the galley *Q* on the front of the machine. A vibrating arm *R* advances the linotypes one after another along into the galley, in which they are thus assembled side by side in column form, as shown in Fig. 8, ready for immediate use.

After the assembled matrices have answered their purpose in front of the mold, it is necessary to distribute and return them to the magazine, from which they are again in due time discharged in different order for use in succeeding lines.

After the casting operation, the line of matrices, having answered its purpose, is lifted vertically as indicated by dotted lines in Fig. 6, and then shifted laterally until the teeth engage the teeth of the plate *R*. This plate then rises as indicated by dotted lines, lifting the entire line of matrices to the distributing mechanism at the top of the magazine. The spaces remain behind when the matrices are lifted to the distributor, and are transferred laterally to the box or holder *H*, to be used again.

The distribution of the matrices to their proper channels is effected by mechanism of extreme simplicity, as follows :

Each matrix has the teeth  $b$  in its upper end arranged in a peculiar order or number, according to the letter which it bears. In other words, a matrix bearing any given letter differs, as to the number or arrangement of its teeth, from a matrix bearing any other letter, and these teeth are relied upon as the means for effecting the distribution. As shown in Figs. 6 and 9, a rigid metal bar  $T$  is fixed in position above the open upper ends of the magazine channels, and is formed at its lower edge with longitudinal teeth or ribs  $t$ , adapted to engage the teeth of the matrices and hold the latter in suspension. The ribs of the distributor bar vary in number and arrangement at different points in its length, there being a special arrangement over the mouth of each channel of the magazine. The matrices to be distributed are simply pushed horizontally upon the bar at one end so as to hang suspended therefrom, and then moved slowly along it over the mouths of the channels. Each matrix will remain in engagement with and be suspended from the teeth of the bar until it arrives over its proper channel, where the arrangement of teeth permits the matrix to disengage so that it fall directly into the channel. This falling action of certain matrices into their respective channels, while other matrices are continuing their course along the bar to their proper points of delivery, is clearly shown in Fig. 9. The movement of the matrices is effected by means of longitudinal screws  $U$ ,



which lie below the distributor bar in position to engage the edges of the matrices and slide them along the bar.

It will be observed that the matrices pursue a circulatory course through the machine, starting from the mouth of the magazine and passing downward to the line in which they are assembled ; thence to the mold

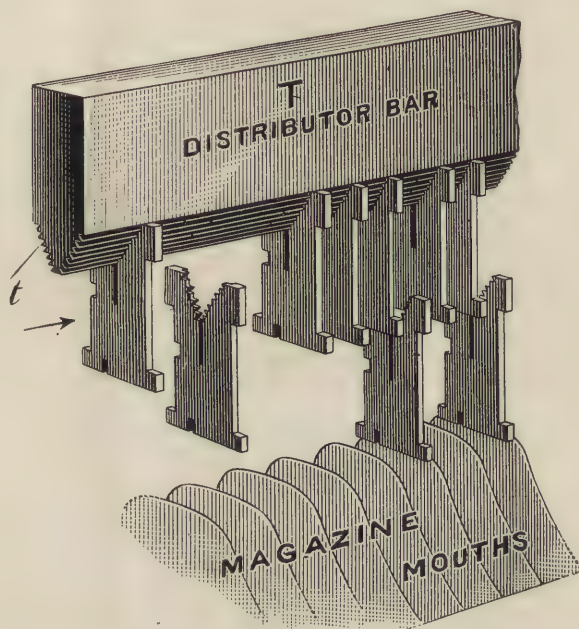
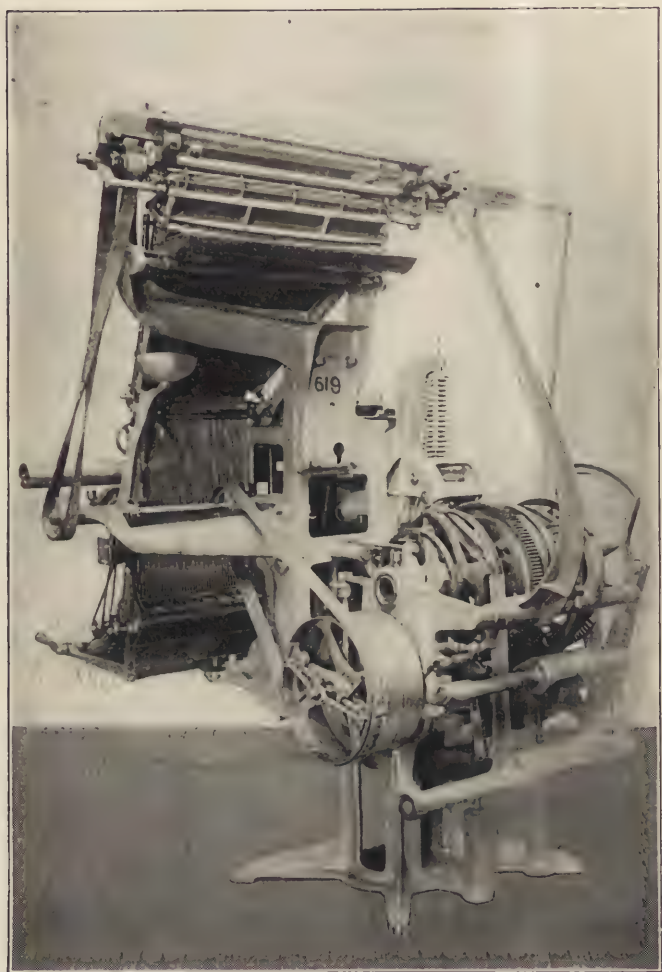


FIG. 9.

to produce the letters on the linotype, and finally back to the magazine at the top. It is this *circulation* of the matrices, and the fact that the operations of composing one line, casting from another, and distributing a third, are carried on *concurrently*, and without interference, that enables the machine to operate at the amazing speed of from four thousand to nine thousand ems per hour.



REAR ELEVATION.



## SOME OF ITS ADVANTAGES.

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### Operation Quickly Learned.

Any intelligent young man or woman can learn in a single day to operate the machine successfully. *Within the first week every beginner should be able to maintain twice the average speed of hand composition*, and there should be a steady increase until a speed of 4,000 ems per hour, and upwards can be maintained. Any person unable to maintain an average of 3,600 ems per hour after four months' practice is unfit to remain at the key-board.

### Hand Compositors as Operators.

Experience has demonstrated that active young men taken from the case make the best machine operators, and that they soon become able to produce clean matter at high speed.

Young women, particularly those who are good typewriters, have, in many cases, become expert operators in a short time.

### One Operator Only.

The Linotype is operated by a single attendant, sitting at the key-board. *No other attendant is needed for any part of the operation.* The manipulation of the finger-keys by this single operator results in the production, delivery, and assemblage of the linotypes in the galley ready for use. There are no additional attendants required for composition, justification, distribution, or for other purposes. For each group of machines it is advisable to have an attendant, whose duty it shall be to keep them clean, see that they are oiled from time to time, and make any little adjustments or repairs which may become necessary. Aside from the keeping of the machines clean, this attendant will have little to do. In one office a single attendant machinist has charge of forty machines; in another, one man attends twenty machines; and in numerous cases one man attends from ten to fifteen. The machines demand only such attention as must be given a printing press, a sewing machine, or other mechanism. In some cases the machines are attended solely by the operator, but in a newspaper office it is found better and cheaper to leave the compositors uninterruptedly at the key-board, and hold one man responsible for the condition of the entire plant.

In several offices machines are attended by men who received their sole education from our mechanic when erecting the machines in the office.

### No Distribution.

The linotypes are simply thrown back after use into the melting-pot of the machine to be cast over into new lines, and consequently the usual expense of distribution and the numerous errors which result therefrom are wholly avoided.

## New Sharp Faces.

As the linotypes are used but once, the publisher is enabled to have a clean and new dress each day, instead of being compelled to use old and dull faces as in the case of ordinary type requiring to be used for long periods of time.

## No Investment for Type.

The usual heavy investment demanded in purchasing and renewing type is wholly avoided, as is also the great loss from the breakage and wear of type. The loss from breakage is, in most type-setting machines, very great.

## Clean Composition on Machine.

Linotype matter always contains a smaller number of errors than matter set by hand. In hand composition many errors occur in consequence of errors in distribution. In the machine operations there can be no error from this cause. *In the operation of the machine each line of matrices is assembled in front of the operator who can see plainly each and every letter, so that if an omission, transposition, or other mistake occurs, it may be corrected in an instant before the line is cast.*

## Rapid Change of Face.

Every machine is so made that the contained matrices, adapted to produce one face or style of type, may be removed in a few moments and replaced by others adapted to produce a different face. Extra sets of matrices will be supplied at a moderate cost, thus enabling the publisher to change his machines at will from one face to another. For example, from nonpareil to agate, minion, long-primer, or small pica.

## Change of Measure.

The measure or length of line is determined by the mold, which is readily removable. By means of extra molds, supplied at moderate cost, the user of the machine may quickly change from one measure to another, thus enabling him to produce book matter and newspaper matter of different measures on one machine.

## Automatic Leading—Change of Body.

By using a mold of larger size than the face, so that the slug has a "shoulder," the lines of print are spread apart and the same effect secured as by "leading" the matter. The machines will, when so ordered, be fitted to thus lead the matter to any desired extent. In many papers nonpareil is used on a minion body, and minion on a brevier body, while in other cases the molds are fitted to lead the matter six to pica and twelve to pica. Molds will be made of any size desired. By removing one mold and inserting another the body and shoulder may be quickly varied as desired.



## Leading by Hand.

Linotype matter may be leaded in the same manner as ordinary type matter, but with far greater rapidity.

## Speed of the Machine.

Every machine built is capable of producing above 8,000 ems of solid matter per hour, and they have been actually run at that speed by expert operators. It is not claimed that this speed can be maintained by the average operator, but it is cited as showing the perfection and capability of the machine. In ordinary newspaper work the average which can be and which is maintained under proper management is above 4,000 ems per hour. The better class of operators are setting daily and continuously from 5,000 to 5,500 ems per hour, and in various offices the average throughout the month, taking into consideration all the operators, good and bad, is 4,000 per hour. If an operator after four months' practice is unable to maintain a speed of 3,600 ems, he is below the average and should be removed from the machine. There are many operators who set, month after month, from 200,000 to 250,000 ems per week in eight hours per day. Mr. Smith, of the Toledo *Commercial*, set in one week 368,900 ems, an average of 7,683 ems per hour.

The actual results in various offices will be found on the closing pages of this pamphlet.

## Speed of Beginners.

A mistaken idea prevails that the training of operators is a matter requiring a long period of time, and that an office must be disorganized for a long time if machines are to be introduced. Such is not the fact. If young compositors are selected, and one expert operator employed for a few days to instruct and guide them and "set the pace," it will be found that the machines will pay from the start.

In every office the *average* will be greatly reduced by one or more operators slower than the remainder. In the face of this fact the following results were secured in offices taking from the cases men ignorant of the machines:

In the Troy *Times* office, an *average* of 2,381 ems was reached in the second week and 2,981 ems during the fifth week. During the fifth week several men were able to set easily above 27,000 ems in eight hours.

In the Peoria *Transcript* office, "*in a week from the time the machines were started we were setting all the matter, and we have not set a line of hand composition since.*"

In the office of the Atlanta *Constitution* the average on the fifty-third night was 2,788 ems per hour for all the operators.

In the office of the Houston *Post*, machines were started in April and in June every operator could produce steadily 3,000 ems per hour, and some of them more:

Aten,	with 56 days' practice,	averaged 3,460 per hour by the day.
Miller,	" 53	" 3,262 "
Andrew,	" 56	" 3,330 "
Warner,	" 23	" 3,013 "

This was all solid matter, without heads, leads, dashes or other phat. On the 57th day Mr. Aten *averaged* 3,910 ems per hour.

In the Chicago *Inter-Ocean* the *average* was : Sixth week, 2,600 ; seventh week, 2,700 per hour, for fourteen operators, good and bad.

### **Standing Matter.**

The investment in type for standing matter in an office is frequently very great. The same matter may be kept standing in linotypes at the mere cost of the type-metal, frequently less than one-fifth of the cost of type.

### **Tabular Matter.**

The machine is specially adapted for setting tabular matter. The *Wall Street Journal*, New York, sets daily by the machine its Clearing-House Statements, Board and Stock Quotations, Trade Statements, and all its general reading matter. Many other papers set daily their Market Reports, Base Ball Reports, and statistical tables, frequently of three and four columns in width. Anything which can be set in tabular form in solid type can also be set rapidly on the machine.

### **Advertising Matter.**

Papers having large numbers of small "ads." to set find that there is a great saving effected by the use of the machines, and a number of machines are used for this purpose alone, in some cases setting the first word or line in capitals, and in other cases with two-line initial letters inserted by hand, as can be speedily done.

### **Mailing Lists.**

The machines are used with entire success for mailing lists, lists of stockholders, poll-lists and similar lists which may be set cheaply, changed quickly and left standing at the cost of the metal.

### **Setting Matter Around Cuts.**

By a very simple procedure, linotype matter may be set in connection with cuts in the same manner that type is so used.

### **Machine Matter Used with Type Matter.**

The linotypes are made of such height as to be used in connection with ordinary type, and are in fact extensively used in this manner.

### **Book Printing.**

The machines will produce lines of any desired length within  $5\frac{1}{2}$  inches, and have been and are now being used with entire success in book-printing. Novels, text-books and legal reports have been produced in large numbers from Linotype faces.



## Directories and Catalogues.

For this class of matter, usually left standing, and frequently modified and reprinted, Linotypes are of special advantage. As each line is solid and complete in itself it may be handled easily, quickly and safely. Lines may be removed and others introduced in far less time than in type matter, and without the danger of "pieing."

This fact, together with the fact that the original cost of composition is much less, and that the standing matter involves only the cost of the type-metal, greatly reduces the cost of all directory and catalogue work, permits the publication of more frequent editions, and enables the issuance of works which, at ordinary prices, would not be justified.

## Speed of Corrections.

Owing to the facility with which new lines may be cast and inserted, it has been found by actual test that linotype matter containing the same defects may be corrected much more rapidly than when set in ordinary type. *In a test made by William H. Rand, of Rand & McNally, the well-known publishers, Linotype matter was corrected in twenty-seven minutes, while the same corrections in type occupied one and a half hours.*

## Continuity of Operations.

The machines are made by highly developed tools and machinery, with interchangeable parts exactly alike, and are very thoroughly tested before leaving the factory. As a result of this care every machine is guaranteed to be perfect and adapted to run without any material pause. Voluminous records from many offices show that their machines frequently run all night or all day without loss of one moment's time. Do not be misled by envious rivals on this point. Investigate the matter yourself. Make inquiry in the offices in which our machines are used and examine the records made on them day after day in the ordinary course of business.

The *Troy Times* says:

"The machines, from the beginning, have worked satisfactorily."

The *Rochester Democrat and Chronicle* says:

"The machines do their work steadily and quietly, and can be depended on for an astonishing amount of composition."

## Metal.

The machine may be used with any good stereotyping metal, but care must be taken not to use inferior or "bastard" metal containing an excess of lead. The metal may be remelted and reused almost indefinitely, but at reasonable intervals it may be advantageously melted *en masse* in a large kettle with a small amount of bismuth to restore its condition. This is not absolutely necessary, but is recommended. The loss from evaporation and oxidation is small, and the cost of maintaining the supply of metal after first

stock is purchased is very small. The cost of the metal is from 8½ to 9½ cents per pound.

### Power and Gas Required.

The exertion demanded on the part of the operator is merely that of depressing the finger-keys, and is less than that of operating a type-writer.

The machine may be driven by a belt from any suitable source of power, such as a steam or a gas engine, or an electric motor. The power required is about one-third of a horse power, but to insure steadiness of motion under all circumstances one-half horse-power should be provided.

The usual cost of gas for each machine is about fifteen cents per day.

### Machines Quickly Set Up for Use.

The machines are taken down in part, and boxed for shipment. *A single mechanic will erect a machine ready for operation in from a day to a day and a half.*

The *Inter-Ocean* says: "The whole fourteen machines were put in place and were in excellent running order in less than two weeks."

The *New York Recorder* says: "It took but one day and a half to set up any machine. \* \* \* Our eight machines (since increased to fifteen) work very well. \* \* \* Please hurry the delivery of the other six."

The *Houston Post* says: "We have had absolutely no trouble with our machines."

The *Atlanta Constitution* says: "We are delighted with the machines and find they have fully met every guarantee made for them by the Company. It took about two weeks to have the ten put together and running. It would have been done sooner but for delay on our part in having the shafting ready."



## ENDORSEMENTS.

### *New York Tribune.*

The following affidavits are copied from the files of Equity Cause No. 4,947, pending in the United States Circuit Court, Southern District of New York:

"City, County and State of New York, ss. :

"G. W. SHAFER, being duly sworn, deposes and says: From early in the year 1887 to the day of April 1888, I was assistant foreman of the *New York Tribune*, and since that date have been, and am now, foreman in charge thereof, and have continuously had charge of the type composition and making up of the forms for that paper, and have had from the said first named date to the present time intimate personal knowledge of the efficiency of the Mergenthaler Linotype machines in that office.

"\* \* \* An operator steadily supplied with copy will easily produce four thousand ems per hour. This speed is frequently required and is easily obtained for one and sometimes several hours before going to press.

\* \* \* \* \*

"The number of these machines was increased from time to time until, in 1888, there were forty-two in use. These machines are in daily successful use and are employed to produce upwards of nine-tenths of all the matter printed in said paper, and also in the production of great quantities of additional miscellaneous matter. In practice it is found that by the machines in question the printing surfaces can be produced at a cost less than one-half that of composing and distributing the type 'forms' previously in use. During the past twelve months there have been produced in the *Tribune* office by the Mergenthaler machines about 274,472,000 ems of matter, which cost about \$80,000 less than it would have cost if set by hand in movable type in the usual manner, and at the prevailing rate of wages."

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### *Louisville Courier-Journal.*

"WALTER N. HALDEMAN, being duly sworn, deposes and says: I am the proprietor and publisher of the *Louisville Courier-Journal* and the *Louisville Evening Times*, both daily newspapers published at Louisville, Kentucky. I have been a publisher for about forty-five years, and during that time have been familiar with the methods and mechanical appliances as used in the printing art throughout the United States. \* \* \* Being convinced of the great merit of these machines I introduced thirty of them into the office of the *Courier-Journal* Company about two years and a half ago,

and since that date they have been in constant and successful use, doing all of the composition work of both of the aforesaid papers, excepting head lines and display advertisements.

"It is my opinion that the invention and introduction of these machines is the greatest improvement in the art of printing made in modern times, and that they are of an importance equal to that of the power press.

"During the last year the machines used by me have produced about 184,102,800 ems of matter at a cost of about \$35,000 less than it would have cost at the prevailing rates if composed in the ordinary manner from movable type.

"WALTER N. HALDEMAN.

"Sworn to and subscribed before me, this 17th }  
day of November, 1890. }

"WILLIAM REDMAN,

"N. P., J. Co., Ky."

### *Providence Journal.*

"R. S. HOWLAND, being first duly sworn, doth depose and say: I am forty-three years of age, a resident of Providence, Rhode Island, and business manager of the *Providence Journal* and the *Evening Bulletin*, two daily newspapers published in said city. I have been engaged in connection with the printing and publishing business for six years, and was generally advised as to the methods and appliances in use in the art in the United States down to and including the years 1886, 1887, and 1888.

"About two years and a half since, a machine, known as the Mergenthaler Linotype Machine, was brought to my attention, and after investigation of the same I caused twelve of them to be introduced into the *Journal* office, where they have been in constant use from that time to the present, producing nearly all the matter used in the publication of the two papers above named. The saving effected by the use of these machines, eight of which do most of the work in the *Journal* office, is not less than \$250 per week over the old method of composition. \* \* \* In addition to the great saving in expense of composition, the use of the machines is also advantageous in that it secures the production of sharp, new type for each print or impression; in that it permits the speedy production of a large amount of matter, which is frequently of great importance in the closing hours of the preparation for going to press; and in that the forms produced by the machine may be retained for future use at no further expenditure than that of the cost of the type metal, which is finally returned to the melting-pot for further use in the casting of new linotypes.

"I consider the introduction of these machines a great advance in the art of printing and of great benefit to the printer and the public, both in the direction of lessening the cost of printed matter and in the direction of improving its quality.



"I have no interest, direct or indirect, in the Mergenthaler machines, the company which manufactures them, or the result of the present litigation.

"R. S. HOWLAND.

"Sworn to and subscribed before me, this 12th }  
day of November, A. D. 1890. }

"HENRY R. DAVIS,

"Notary Public."

### *Brooklyn Standard-Union.*

[Extract from issue of March 24, 1891.]

"For more than five months the Linotype machines have been in daily use in the *Standard-Union* office and the actual results are given in the table below. The operators are compositors from our cases, and had to be educated from the very beginning. They are paid under a provisional arrangement—\$22 per week of six days of eight hours each actual composition on the machines. They like the work and pay both better than the case. As to the actual net cost of corrected matter per 1,000 ems, it is not possible at the present time to state precisely, as some of the factors in the problem have not been finally and accurately determined. Taking, however, the wages as above stated, and adding the cost of one machinist, of gas, of interest on the plant, and a trifle for power and waste of metal, and deducting the depreciation by wear, breakage and loss of ordinary type in his office, any intelligent newspaper proprietor can solve the problem with substantial accuracy. In any event, enough has been demonstrated to prove that the assertion at the opening of this article is within the limits of truth and sober fact.

"Our foreman reports that he has not had an imperfect bar of type from the machines in three months, and that the bars, or "slugs," make up in forms very much easier and better than ordinary type. The measurement is solid, and no head lines, leads, cuts or "fat matter" are credited to the machine. The record of the *Standard-Union* Linotypes is as follows:"

Then follows a tabular statement of what each machine produced every week for sixteen consecutive weeks, commencing Dec. 1, 1890, and ending March 21, 1891, showing that for the week ending Dec. 6, 1890, the six operators averaged 2,174 corrected ems each per hour; for the week ending Jan. 31, 1891, they each averaged 3,253, and for the week ending March 21, 1891, they each averaged 3,667 corrected ems per hour. The matter was set "solid and no head lines, cuts or fat matter are credited to the machine." No allowance was made for lost time in waiting for copy.

Since the last mentioned date (March 21, 1891) the reports from the *Standard-Union* have been of the work of each operator irrespective of the machine he worked, and show that from 3,500 to 5,000 corrected ems should be expected from an operator after four or five months' practice. All of the original operators on the *Standard-Union* machines are still engaged at Linotype work, but they are somewhat scattered. Two remain on the

*Standard-Union*, one is on the *Daily Press*, Troy, N. Y., two on the *Morning Journal*, N. Y., and one on the *Daily Commercial*, Toledo, O. There is not one of them that does not average over 4,000 ems per hour of regular work. Any one of them, in a rush of matter, will exceed 5,000 ems per hour, including correcting his own proofs. For the four weeks ending June, 6, 1891, Frank H. Smith, making no allowance for lost time, averaged 4,975 corrected ems per hour. Deducting the time he lost in waiting for copy, his average during the four weeks exceeded 5,000 corrected ems per hour.

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### *Chicago News.*

"VICTOR F. LAWSON, being duly sworn, deposes and says: I am forty years of age, a resident of Chicago, and publisher of the *Chicago Daily News*, a daily newspaper published in said city. There are in daily use in the office of said newspaper twelve of the Mergenthaler Linotype machines. Said machines have been in use for the past three years, with marked success, and with great advantage, both as regards cost and the quality of the print.

"My long practical use of the machines has demonstrated the fact that they reduce the cost of composition in the *News* office from fifty to sixty per cent. as compared with the methods previously in use.

"VICTOR F. LAWSON.

"Subscribed and sworn to before me, }  
this 20th day of November, 1890. }

"ORIN L. GORDON,

"Notary Public,"

---

### *Staats-Zeitung.*

NEW YORK, February 27th, 1892.

DEAR SIR--We endorse the Linotype machines and *believe they will reduce the expenses of composition sixty-six per cent.* We have largely reduced our expenses.

HERMAN RIDDER.

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### *The Constitution.*

ATLANTA, Ga., April 25th, 1892.

MR. PHILIP T. DODGE, *Tribune* Building, New York:

MY DEAR SIR--Replying to yours of the 20th instant, asking for information concerning the working of the Linotype machines in *The Constitution* office, I beg to say that we are delighted with them, and find they have fully met every guarantee made for them by the Company.

The machines have been at work less than sixty days. They are operated by men who knew nothing whatever about them before they were

placed in position, and we picked our operators from printers who had been in our employ on the cases.

After the arrival of the machines from Baltimore it took about two weeks to have them put together and ready for operation. The work could have been done sooner had there not been some delay on our part in having the shafting ready. After the machines were ready for the operators we began to use them at once in setting matter for the paper. The operators had in the mean time become familiar with the key-board by practicing on dummy key-boards. We dropped two of our printers the first night the machines were ready for use, and at the end of the first week dropped six. We have now been using the machines for six weeks and set the entire paper by them, excepting, of course, head lines and display advertisements.

At the end of five weeks our ten machines averaged 21,500 ems a night of eight hours' work, and if this ratio of improvement continues we expect to have an average of 25,000 ems a night in less than another month. We are perfectly satisfied with the machines in every respect.

Very truly, yours,

CLARK HOWELL.

*New Orleans Times-Democrat.*

NEW ORLEANS, March 4th, 1892.

GENTLEMEN—Replying to your favor of the 27th we would say that we have been using the Mergenthaler Linotype machines for about eight months. \* \* \* The machines are now doing profitable work. \* \* \* *We have no hesitation in saying that they are an invention of great value and an immense saving over hand composition.* We have no reason to regret their installation in our composing-room.

Yours, truly,

TIMES-DEMOCRAT.

*Morning Journal.*

NEW YORK, February 28th, 1892.

PHIL. T. DODGE, ESQ.,

DEAR SIR—*We have certainly found an economy in the use of the Linotype machines,* and the saving will be still greater when we get our full complement of them. Can you not push forward the work on our behalf.

Yours, very truly,

THOMAS BURGESS,

*General Business Manager.*



*Cleveland Plain Dealer.*

CLEVELAND, O., March 1st, 1892.

MERGENTHALER LINOTYPE CO.:

GENTLEMEN—In response to your favor of February 27th would say *you may refer to us as endorsing the Linotype machines in their entirety.* The *Plain Dealer* has been operating nine of them for the past two months and they have had a crucial test. *In installing the machines we took compositors from the cases,* most, if any, of whom had never seen the machines before, and set them to operating them regularly. Within a week the nine compositors had fairly learned the *modus operandi*, and were able to produce from 8,000 to 12,000 ems per day of eight hours. On the 27th of February, the date of your letter, the nine men set (with less than two months' experience) over 21,000 ems each, the average being materially reduced by two slow operators. The machines have been run regularly without interruption ever since they were started, with the exception of three brief delays occasioned by carelessness. The work produced is good and the print excellent. *There is a large saving over hand composition.* We have a new dress every day, and in every particular we are thoroughly satisfied with the results.

Very respectfully,

THE PLAIN DEALER PUBLISHING CO.,

By GEO. F. PRESCOTT.

*The Inter-Ocean.*

CHICAGO, ILL., April 20th, 1892.

PHIL. T. DODGE, Esq.,

*Gen'l Manager Mergenthaler Linotype Co., New York, N. Y.:*

DEAR SIR—I am in receipt of yours of the 20th inst., informing me that the discontinuance of the use of your machines by the I.-O. P. Company was being used by interested parties to the disadvantage of the Mergenthaler Machine Co., claiming that this Company has stated, from time to time, the cause for their discontinuance to be that they did not produce good printing faces, and did not run in a satisfactory manner, that it took a month to set up each machine, that they failed to run more than one-half the time, that they would not produce more than 1,500 ems per hour, and that there was no possible saving of expense by their use.

Such statements (all and singular) are, if made as coming from this paper, absolutely false. *The facts are, that your machines did, from first to last, produce what were admitted to be not only good but excellent printing faces. The whole fourteen were put in place and were in excellent running order in less than two weeks' time, and they run perfectly and continuously for eight hours per day, and would just as satisfactorily for sixteen to twenty-four. The cost of composition was greatly reduced.*

The machines were discarded simply because it was not possible for this Company to use them for the entire paper. *The claims of merit made by*

*you to this Company for these machines have been fully sustained and you are at liberty to make such use of the foregoing statements as you may deem proper.*

Yours, truly,

(Signed) H. H. BLAKE,

Gen'l Supt.

### *Chicago News.*

CHICAGO, 1892.

There are in daily use, in the office of *Chicago Daily News*, twelve of Mergenthaler Linotype machines. *Said machines have been in use for the past three years with marked success*, and with great advantage as regards cost and the quality of the print.

My long practical use of the machines has demonstrated the fact that *they reduce the cost of composition in the NEWS office from fifty to sixty per cent.* as compared with the methods previously in use.

VICTOR F. LAWSON.

### *New York Recorder.*

22-34 NEW CHAMBERS STREET.

Composing Room, March 1, 1892.

P. T. DODGE, *Pres't and Man'gr Mergenthaler Linotype Co.:*

DEAR SIR—Please hurry the delivery of the next six Linotype machines as much as possible; the sooner we get them the better. *Our first eight machines work very well*, and it took but one day and a half to set any one of them up and put in working order. Our installation is of too recent a date to enable me to give you figures that would do justice to both of us, but I can say even from my present experience that the real working capacity of our typesetting machines has nowhere been obtained yet. As in everything else, *The Recorder* will lead the procession in that respect, *while a glance at our paper will show you what excellent printing can be done from your type bars.*

Yours, respectfully,

(Signed) HENRI ROGOWSKI.

[This paper has increased its plant to fifteen machines.]

### *Star Sayings.*

ST. LOUIS, MO., March 1st, 1892.

P. T. DODGE, *General Manager:*

DEAR SIR—After an experience of six months with six of your Linotype machines, I take pleasure in saying that, with a full and perfect equipment and proper handling, there is not a newspaper in the country that would not

be largely benefited by the use of the Mergenthaler Linotype. *Its economy its undoubtedly great, and its first-class work gives a beautiful result.*

THE SAYINGS CO.,

By G. W. FISHBACK,

*Business Manager.*

### *Daily Bulletin.*

NEW YORK, March 2d, 1892.

GENTLEMEN—*The Daily Commercial Bulletin* has used the Linotype machines for about ten months, and since the first two months of initiatory operations, they have worked with almost entire satisfaction, improving as they are used, *and yielding steadily increasing results with no indication that the maximum output has yet been reached*, ALTHOUGH THE DAILY COMPOSITION PER MACHINE NOW AVERAGES MORE THAN FOUR-FOLD THE FORMER DAILY WORK PER HAND COMPOSITOR. No difficulty has been found in getting satisfactory results by transferring compositors from the case to the machine. *The operating of the Linotype is easily and quickly acquired.*

NEW YORK DAILY BULLETIN ASSOCIATION,

W. DODSWORTH,

*President.*

### *Wall Street Journal.*

DOW, JONES & CO.,

41 Broad Street, New York, March 2nd, 1892. }

GENTLEMEN—We have been using the Linotype machines for nine months. *They have given good results and we are entirely satisfied with them.*

Yours, truly,

DOW, JONES & CO.

### *Democrat and Chronicle.*

ROCHESTER, N. Y., May 4th, 1892.

THE MERGENTHALER CO., New York City :

GENTLEMEN—Our machines are working well. Night after night we get up the paper without a hitch of any kind. The following is what the foreman of our composing-room says :

“ When the seven were placed in the News Room of the *Democrat and Chronicle*, I knew nothing about the machine. At the end of three months I was setting the entire paper (ten and twelve pages daily) with these seven machines. I find that the use of the machines makes the work very much easier, and the business of the night is in every way more satisfactory. The



machines do their work steadily and quietly and can be depended upon for an astonishing amount of composition.

"In case of a crowd of matter towards the close, their work is peculiarly satisfactory, enabling me to send the forms to the stereotypers on time and without sacrificing late and important news. Personally, my work is very much lightened by the introduction of the Linotype machines."

Yours, truly,

W. H. MATTHEWS,

*President.*

### *Troy Press.*

TROY, N. Y., Dec. 14th, 1891.

DEAR SIR—You ask my opinion of the Linotype machines. *Excepting others could be bought, no amount of money within reason would induce me to suspend their use.* During the last week, with five machines and two of the operators comparatively inexperienced, the amount set measured 616,720 ems—lead with ten to pica—an average of 30,558 per day of eight hours. The fastest man averaged 45,503. A very great advantage is gained from the use of Linotypes that you have never claimed, since it affects the stereotyping department alone. \* \* \* The projection of the fitting strips on their sides allows the heat to pass through the form to the matrix, resulting in a saving of three minutes or more in curing the matrix. \* \* \*

Why any newspaper publisher should hesitate in putting the Mergenthaler Linotypes into his establishment is beyond my comprehension, unless it may be his ignorance of the tremendous advantages to be gained, or possibly your inability to deliver machines. \* \* \*

The Linotype is the pioneer in a discovery that will revolutionize the type-setting department of a newspaper, as the rotary press and stereotyping have the art of printing.

Very truly, yours,

H. O'R. TUCKER.

### *Albany Journal.*

ALBANY, March 1st, 1892.

DEAR SIR—I have your favor of February 27th, and in reply would say that *you are at perfect liberty to refer to the ALBANY EXPRESS and the ALBANY JOURNAL as newspapers which indorse the Linotype machines.* We believe in the machine, as it has done good and satisfactory work for us, I enclose you a record made in our office last week.

Very truly, yours,

WM. BARNES, JR.

*Louisville Courier-Journal.*

LOUISVILLE, KY., March 2nd, 1892.

DEAR SIR — Your favor of the 27th ult. to hand and noted. You are at perfect liberty to refer to us as indorsing the Linotype machines. *You may quote us as giving an unqualified indorsement of the machines*, and, although we are using the first lot that were made, which do not embrace all the latest improvements, we unhesitatingly say that we would not be without the machines. We are done with hand composition.

Yours, very respectfully,

COURIER-JOURNAL CO.,

By CHAS. D. PEARCE,  
*Business Manager.*

*Linotype Reporting and Printing Co.*

NEW YORK, 31 and 32 Park Row, April 21, 1892.

DEAR SIR — This Company is using the Mergenthaler Linotype machines. This Company does a high grade of law printing, and also a large general reporting business, and furnishes records in print of short-hand reports of proceedings in Court, before Referees, etc. at the price charged by stenographers for the ordinary typewriter transcripts. Our type composition by the machine costs us about one-fourth the usual charge for hand composition. \* \* \*

Operators setting from ordinary copy average from 4,000 to 5,000 ems per hour. From Phonograph or Graphophone dictation the speed of operators is increased to from 6,000 to 7,000 ems an hour, corrected matter. \* \* \*

J. O. CLEPHANE,  
*President.*

*Toledo Commercial.*

TOLEDO, Feb. 26th, 1892.

MY DEAR SIR — I enclose herewith copy of statement of Linotype composition, showing Mr.———'s latest and highest achievement, to wit: 54,300 ems, eight hours' work \* \* \* He will be able to turn out 7,000 ems an hour shortly.

Yours, truly,  
P. C. BOYLE.

*Peoria Transcript.*

PEORIA, ILL., July 5th, 1892.

MERCENTHALER LINOTYPE CO., New York:

GENTLEMEN — We are pleased to state that the three Linotype machines placed in our composing-room in March last are giving entire satis-

faction. Within a week from the arrival of the machines they were ready to start. In a week from the time they were started we were setting all the matter for the *Transcript* and we have not set a line of hand composition since. Not a single edition of the paper has been delayed on account of the machines, and the repairs have been but trifling.

They are now operated entirely by men taken from the cases, and those who have had but three months' practice average 3,000 to 3,500 per hour with ease. The machines have reduced our composition bill fully one-third and we would not, under any circumstances, return to hand composition.

Yours, respectfully,

TRANSCRIPT PUBLISHING CO.

Per A. STONE,

*Sec. and Treas.*

### *Houston Post.*

HOUSTON, TEXAS, April 4th, 1890.

DEAR SIR—We are running the Linotype machines daily, and *they work beautifully*. We are much pleased with them.

Yours, very truly,

J. L. WATSON,

*Manager.*

### *The Troy Daily Times.*

TROY, N. Y., June 28th, 1892.

Mr. P. T. DODGE,

New York City, N. Y. :

DEAR SIR—In reply to your inquiry relative to the introduction of the Mergenthaler Linotype machines in our composing-room, we would say: We have seven; they were received in Troy May 4. Owing to the fact that our elevator was not sufficiently large to admit the frame of the machine, it was found necessary to take each one apart on the sidewalk, and afterward assemble the different parts in the composing-room. This work was done by one machinist, your Mr. Rice, who did his work most acceptably. The first machine was set up May 16, three machines were in operation May 19, five on May 20, and the seven were in good working order on May 22.

The operators were all regular hands taken from cases in the *Times* composing-room, and had had no previous experience with your machine.

At the end of the second full week the seven machines turned out 787,000 ems, an average per working hour of 2,381 ems each machine. During the fifth full week six machines turned out 849,600 ems, an average of 2,981 ems per hour each machine. The seventh machine, operated by a



beginner, averaged 2,339 ems per hour. Several of our men, with now five weeks' experience, can easily set over 27,000 ems per day of eight hours,

We have *not* in our office suffered the embarrassments which we were told invariably followed the introduction of your invention; the machines have from the beginning worked satisfactorily, and, up to the present time, no serious break-down has occurred. Your assurance regarding the operation of the Mergenthaler Linotype machines certainly has been met in all respects in the *Times* office.

Very truly, yours,

J. M. FRANCIS & SON.

(Dictated.)

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*Madison Democrat.*

MADISON, WIS., August 13th, 1892.

Mr. P. T. DODGE:

DEAR SIR—We thank you for the promptness with which you have furnished the machine outfit. We are all delighted with the way they work. One machine was up Monday. Two were run Tuesday. All four machines were running Wednesday. On Thursday, 49,450 ems were set in nine hours *by printers who had never seen a machine until they were put up in the office.* \* \* The machines are working beautifully.

Very truly yours,

GEO. RAYMER.

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MADISON, WIS., August 27th, 1892.

Mr. P. T. DODGE:

We certainly could not ask anything better than the machines are doing. *Two weeks ago to-day they started, and we have no man at the case setting type either on the daily or English list of ready prints.* \* \* \* \* \*

Yours, truly,

GEO. RAYMER.

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*Detroit Free Press.*

DETROIT, MICH., August 8th, 1892.

Mr. P. T. DODGE, *Pres't*:

We started a battery of eight machines last night. They worked very successfully. We point with pride to the result. \* \* \* \* \* There is no necessity here for the presence of your expert.

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DETROIT, MICH., August 26th, 1892.

PHIL. T. DODGE,

*Pres't and Gen'l Manager Mergenthaler Linotype Co.,*

New York, N. Y.:

DEAR SIR—In reply to yours of 25th inst., will say that the machines

were put in operation without delay or trouble, and that their work is highly satisfactory. We started eight machines in one night, and the others as we could educate operators. We are setting nearly the entire paper, excepting "ads," largely with men who never operated a Linotype before, and they are developing great efficiency with less than three weeks of practice, and are pleased with the work. Many compliments have been paid the paper by printers and publishers upon its bright appearance in a new dress each day.  
\* \* \* I believe the days of hand composition on large daily papers are nearly over.

Yours, truly,  
S. E. HARMON,  
*Sup't News Room.*

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*Toledo Blade.*

PHIL. T. DODGE, Esq.,  
*President Mergenthaler Linotype Co., New York, N. Y.:*

DEAR SIR—I have just returned after a long absence, and find our ten Linotypes in good working order. We are highly pleased with them so far, and believe they are going to be a perfect success. \* \* \* \* It is apparent just now that we shall have little or no trouble with the machines. Our operators are learning very fast, and the work of the ten machines during the past week was 1,451,000 ems. We think, very shortly, our ten operators will be able to do 1,800,000 ems per week, if not 2,000,000.\* \* \*

Very truly, yours,  
F. T. LANE,  
*Sec'y Toledo Blade Co.*

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*Denver Times.*

MR. PHIL. T. DODGE,  
*Manager Mergenthaler Co.*

DEAR SIR—The Linotype machines in our office have rendered splendid service. Their work has been reliable, and the appearance of our paper most satisfactory. I take great pleasure in attesting to their value.

Yours, very truly,  
H. W. HAWLEY,  
*Manager Times.*

## Records in Regular Work.

### *The Standard-Union.*

Machine composition for the week ending October 17th, 1891 :

MONDAY.		THURSDAY.	
Hallock .....	33,200	Hallock .....	35,640
Carnochan .....	28,512	Adams .....	23,066
Young .....	36,000	Young .....	38,321
Lasher .....	14,300	Lasher .....	13,000
Buckley .....	28,007	Buckley .....	29,419
Tierney .....	28,950	Tierney .....	32,840
Total .....	168,969	Total .....	172,286
TUESDAY.		FRIDAY.	
Hallock .....	36,450	Hallock .....	38,340
Carnochan .....	31,185	Carnochan .....	33,318
Young .....	41,931	Young .....	40,500
Lasher .....	15,300	Lasher .....	15,000
Buckley .....	31,300	Buckley .....	31,320
Tierney .....	30,840	Tierney .....	33,120
Total .....	187,006	Total .....	191,598
WEDNESDAY.		SATURDAY.	
Hallock .....	35,100	Hallock .....	33,750
Carnochan .....	30,645	Carnochan .....	29,916
Young .....	31,266	Young .....	36,990
Lasher .....	14,020	Lasher .....	15,650
Buckley .....	27,970	Buckley .....	22,464
Tierney .....	31,700	Tierney .....	29,280
Total .....	170,701	Total .....	168,050
Grand Total .....		1,058,610	

Lasher was a beginner, but counting him in, the operators averaged 3,672 ems each for the entire week. The five experienced operators averaged each 4,079 ems per hour.

### The Speed attained by an Expert Operator.

Mr. Fred. J. Smith, on the *Toledo Commercial*, has records, in the ordinary course of business, as follows :

Tuesday .....	30,000 ems.
Wednesday .....	47,900 "
Thursday .....	42,500 "
Friday .....	44,600 "
Saturday .....	44,500 "
Sunday .....	59,500 "
Total .....	259,000 "



Showing a total of 259,000 ems in six days. On Tuesday he worked only five hours, reducing the working time to forty-five hours for the week, and showing an average of 5,750 ems per hour.

THESE ARE RECOGNIZED AS PHENOMENAL RECORDS BY A PHENOMENAL OPERATOR, AND ARE GIVEN TO SHOW THE PERFECTION AND CAPACITY OF THE MACHINE.

Since the date of the above record, Mr. Smith has again broken the records, as follows:

February 22, 1892.....	44,700 ems.
“ 23, “ .....	47,000 “
“ 24, “ .....	47,700 “
“ 25, “ .....	54,300 “
“ 26, “ .....	41,800 “
“ 27, “ .....	38,300 “
Total, six days.....	273,800 “
March 15, 1892.....	53,100 ems.
“ 16, “ .....	60,000 “
“ 17, “ .....	54,000 “
“ 18, “ .....	65,000 “
“ 19, “ .....	66,800 “
“ 22, “ .....	70,000 “
Total, six days.....	368,900 “
<i>Average, 7,683 per hour.</i>	

### The Monthly Record of Five Machines.

During the week ending February 27, 1892, five machines in the *Albany Journal* office set 1,113,944 ems. The same machines set as follows:

Week ending January 9, 1892.....	1,036,220 ems.
“ “ “ 16, “ .....	1,025,410 “
“ “ “ 23, “ .....	1,050,832 “
“ “ “ 30, “ .....	1,078,169 “

Four of the above machines ran eight hours, night time, making sixteen hours' run, and *there has not been one hour's lost time on the five machines for two months.*

### An Average Worthy of Consideration.

The record in the *Albany Journal* office for the week ending October 16, 1891, was:

Rifenberick .....	180,958 ems.
Youngs.....	202,314 “
Houghton.....	210,584 “
Held .....	191,583 “
Ferris.....	199,663 “
Total .....	984,102 “

*Average per hour 4,020 ems.*

Mr. Ferris has a record of 256,929 ems in one week.

*The Troy Press.*

TROY, N. Y., April 18th, 1892.

PHIL. T. DODGE:

DEAR SIR:—For the week ending April 15, our six machines produced 1,171,300 ems, an average of 3,973 an hour. Below find statement.

McCarty	....	258,100 ems	....	49½ hours	....	5,214 average.
Riordan	...	221,400 "	....	50½ "	...	4,380 "
Brown	....	201,500 "	....	50¼ "	....	3,951 "
O'Brien	....	173,600 "	....	49¼ "	....	3,520 "
Francis	....	173,600 "	....	49¾ "	....	3,489 "
Baxter	....	143,100 "	....	45½ "	....	3,140 "
		1,171,300 "			293¾ "	3,973 "

Only linotype matter was measured.

Most of our matter is Nonpareil with ten to Pica leads.

Very truly,

H. O'R. TUCKER.

**A Remarkable Monthly Record by an Expert.**

In the *Troy Times* office, one of the most expert operators, Mr. McCarty, set as follows:

Week ending February 6, 1892	....	300,000 ems.
" " " 13, 1892	....	268,600 "
" " March 5, 1892	....	266,600 "
" " " 12, 1892	....	246,600 "

*The week commencing October 12, 1891:*

	Ems. per hour.
Fred. J. Smith, on <i>Toledo Commercial</i> , made	5,750
Ben. McCarty, on <i>Troy Daily Press</i> , made	4,540
Mr. Houghton, on <i>Albany Evening Journal</i>	4,387
Mr. Young, on <i>Standard-Union</i> (Brooklyn), made	4,689

The above was made in ordinary daily newspaper work.

*Work on the N. Y. Morning Journal.*

NEW YORK, October 23rd, 1891.

DEAR SIR:—My average work on the Linotype machine, when steadily supplied with copy, is over 4,000 ems per hour of corrected matter. I have set and corrected, for several consecutive hours, over 5,000 ems per hour.

(Signed) WILLIAM ONDERDONK.

*Providence Journal,*

In this office, during the week ending June 24, 1892 :

Dalling set in 50 h. 10 m.....	269,601 ems.
Brow     "     30 h. 50 m.....	139,500     "

Other operators set at approximately the same speed, and the machines produced during the week a total of 2,572,888 ems.

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**Price of the Machines.**

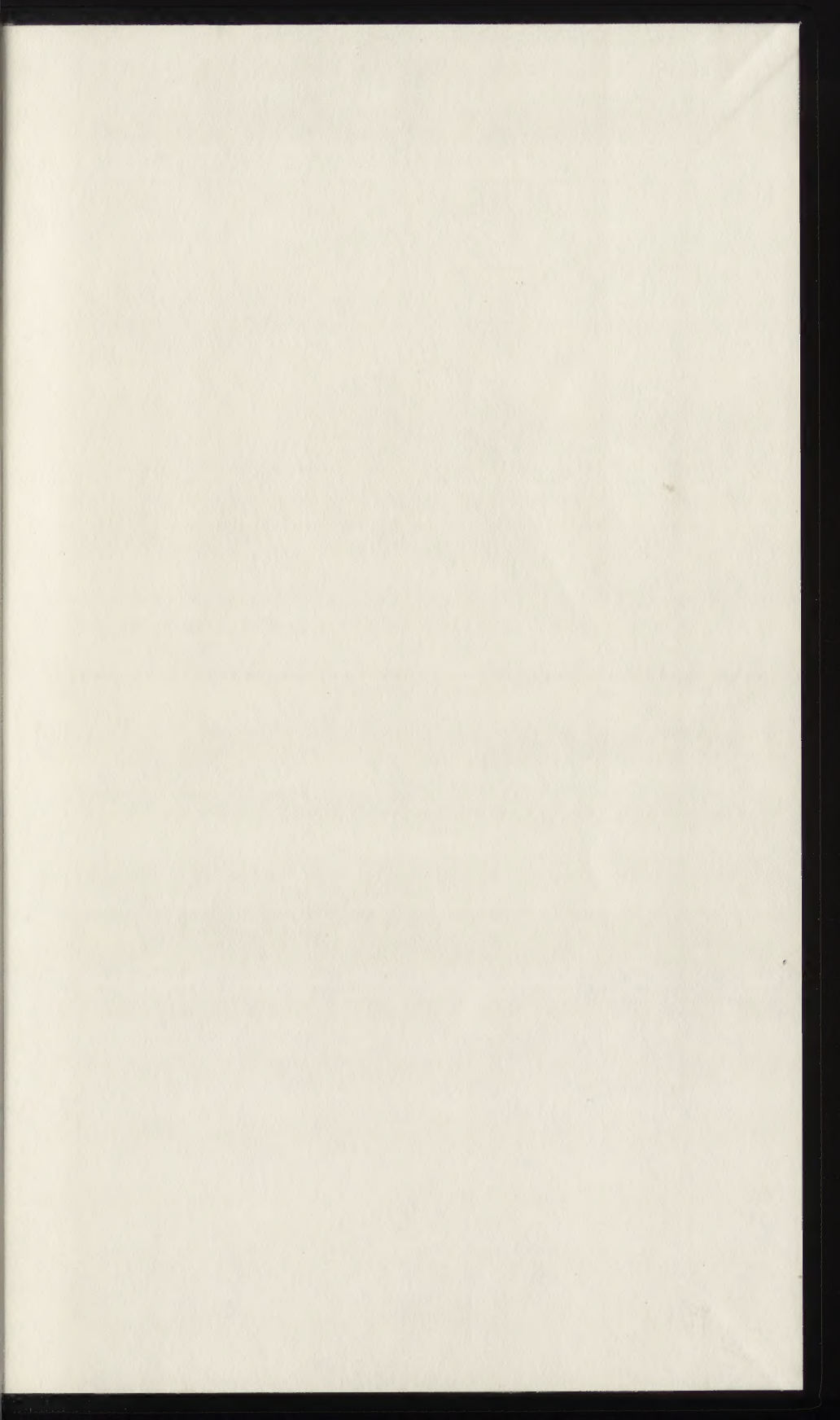
The Linotype is sold, complete, at \$3,000, f. o. b., at New York or Baltimore, with a small discount for cash ; or it will be sold at \$3,000, part cash and the balance in good bankable paper running for a reasonable length of time. Or, if preferred, machines will be rented in groups at \$500 each per year in advance—all freights and cost of erection to be paid by the user. The Company will send a skilled mechanic to erect the machines and start them, and, if desired, will send a skilled compositor for a reasonable period to instruct beginners in the office of the user ; the ordinary wages and traveling expenses of these men to be paid by the user. If the user desires, the Company will also endeavor to supply permanently a machinist and one or more skilled operators.

MERGENTHALER LINOTYPE CO.,

TRIBUNE BUILDING, NEW YORK.



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